

Remarks/Arguments:

Amendments

The specification has been amended to correct obvious typographical errors.

Independent claims 37 and 76 have been amended. Support for these amendments is found on page 9, line 25, to page 6, line 2; on page 11, lines 2-13; and in original claim 47. Claim 59 has been amended to introduce conventional claim language. Claims 84 and 87 have been amended to change dependency. Support for new claims 96 and 97 is found on page 8, lines 11-12. Support for new claims 98 and 101 is found on page 8, lines 23-26, and on page 9, line 25, to page 10, line 2. Support for new claims 99, 100, 102, and 103 is found on page 9, line 25, to page 10, line 2, and in Figure 2A. It is submitted that no new matter is introduced by these amendments and new claims. Entry of this amendment is respectfully requested.

Independent claims 37 and 76, and dependent claims 40, 59, 84-87, and 96-103 are pending in the application.

First Rejection under 35 USC 102(b)

Claims 37, 40, 47, 66, 69, 76, 83, 85-88, 90, 92, and were rejected as unpatentable over Gause, U.S. Patent 3,895,158 ("Gause") in view of "Paper on Web" and Yuhas, U.S. Patent 5,350,621 ("Yuhas").

The Office position is that Gause teaches a laminate structure "comprising resin impregnated cellulosic fiber paper layer(s), a non-woven material, between woven glass fiber layers." Office action of 1/28/08, page 3, lines 6-8. The Office admits that Gause does not recite the density of the individual layers. *Id.*, page 3, line 22. According to the Office, Yuhas and Paper on Web were cited for disclosure of the various densities of paper and glass fabrics commonly used in the manufacture of printed wiring boards. *Id.*, page 4, lines 10-11. According to the Office, it would be obvious to use a combination of the known materials to manufacture a printed wiring board having all the elements of the rejected claims. *Id.*, page 4, lines 15-20 (emphasis added).

Claims 37 and 76, the only independent claims remaining in the application, recite that

the fiber sheet comprises a non-woven fabric and an inside layer and two surface layers. The density of the non-woven fabric in the inside layer is less than the density of the non-woven fabric in each of the surface layers.

All three of the layers of the fiber sheet comprise the same non-woven fabric. As explained in the specification, the difference in density between the layers of the fiber sheet is due to the fact that resin is not impregnated well in the center section. Specification, page 10, lines 7-11. As a result, the pre-preg sheet can be compressed the heating and pressing steps. *Id.*, page 11, lines 2-6.

A fiber sheet in which there is a difference in density between the layers, but in which all three layers comprise the same non-woven fabric, is neither disclosed nor suggested by the references relied on by the Office. The alleged density differences in Gause arise from the fact that different materials, paper and glass fibers, are used for the different layers. Gause, column 3, lines 15-22. The Office has not alleged that this deficiency is overcome by combination of Gause with Yuhas and Paper on Web. Yuhas and Paper on Web were cited only for the disclosure of densities of certain materials.

The Office has not made the *prima facie* case. Combination of the references in the manner indicated by the Office does not produce a fiber sheet that comprises three layers in which the density of the non-woven fabric in the inside layer is less than the density of the same non-woven fabric in each of the surface layers. For this reason the rejection of independent claims 37 and 76, and the claims dependent thereon, as unpatentable over Gause, in view of Paper on Web and Yuhas should be withdrawn.

Second Rejection under 35 USC 103(a)

Claims 37, 40, 47, 66, 69, 76, 83, and 85-87 were rejected as unpatentable over Yuhas in view of Paper on Web.

Yuhas was cited for the disclosure of "multilayer laminates for a printed circuit board which can commonly have up to three layers of different types of fabric." Office action of 1/28/08, page 5, lines 21-22 (emphasis added). Paper on Web was cited for disclosure of the density of papers. *Id.*, page 6, line 6.

As discussed above, in claims 37 and 76, the only independent claims remaining in the application, all three of the layers of the fiber sheet comprise the same non-woven fabric. The alleged density differences in Yuhas also arise from the fact that different materials are used for the different layers. Yuhas, column 6, lines 45-46. The Office has not alleged that this deficiency is overcome by combination of Yuhas with Paper on Web. Paper on Web was cited only for the disclosure of densities of certain materials.

The Office has not made the *prima facie* case. Combination of the references in the manner indicated by the Office does not produce a fiber sheet that comprises three layers in which the density of the non-woven fabric in the inside layer is less than the density of the same non-woven fabric in each of the surface layers. For this reason the rejection of independent claims 37 and 76, and the claims dependent thereon, as unpatentable over Yuhas in view of Paper on Web should be withdrawn.

Third Rejection under 35 USC 103(a)

Claims 37, 40, 47, 66, 69, 76, 83, and 85-95 were rejected as unpatentable over Kawakita, U.S. Patent 5,960,538 ("Kawakita") in view of Gause, Paper on Web, and Yuhas.

Kawakita was cited for the disclosure of aramid-epoxy sheet(s). Office action of 1/22/08, page 7, lines 12-14. The Office also alleges that Kawakita discloses multilayer pre-pregs having at least three layers. *Id.* This assertion is respectfully traversed. Examples 1 and 3 of Kawakita disclose products made by stacking three pre-pregs after the holes had been formed in the pre-regs and the holes filled with conductive paste. Kawakita, column 11, lines 3-5, and column 13, lines 11-12. These Examples do not disclose a pre-preg that comprises three layers. The pre-pregs appear to be commercially available aramid-epoxy sheets (TA-01 manufactured by Tejin Limited), whose structure is not disclosed. *Id.*, column 10, lines 53-54.

As discussed above, in claims 37 and 76, the only independent claims remaining in the application, all three of the layers of the fiber sheet comprise the same non-woven fabric.

As indicated above, the alleged density differences in Gause and Yuhas arise from the fact that different materials are used for the different layers. The Office admits "that Yuhas et al, column 7, lines 45-67, teach that various combinations of materials and resins are suitable in order to achieve the desired characteristics." Office action of 1/28/08, page 8, lines 16-17

(emphasis added). Thus, Yuhas teaches away from the claimed invention in which the same non-woven fabric is used in all three layers. Paper on Web was cited for disclosure of density of papers. *Id.*, page 8, line 9.

The Office has not made the *prima facie* case. Combination of the references in the manner indicated by the Office does not produce a fiber sheet that comprises three layers in which the density of the non-woven fabric in the inside layer is less than the density of the same non-woven fabric in each of the surface layers. Further, Yuhas teaches against making such a fiber sheet. For this reason the rejection of independent claims 37 and 76, and the claims dependent thereon, as unpatentable over Kawakita in view of Gause, Paper on Web, and Yuhas should be withdrawn.

Fourth Rejection under 35 USC 103(a)

Claims 59 and 84 were rejected as unpatentable over Kawakita in view of Gause and Paper in Web as previously applied. Claim 59 is dependent on independent claim 37, and claim 84 is dependent on dependent on independent claim 76.

The Office has not made the *prima facie* case. As discussed above, neither Kawakita, Gause, Paper on Web, nor the combination thereof, disclose or suggest a fiber sheet that comprises three layers in which the density of the non-woven fabric in the inside layer is less than the density of the same non-woven fabric in each of the surface layers. For this reason, the rejection of claims 59 and 84 as unpatentable over Kawakita in view of Gause and Paper on Web should be withdrawn.

Fifth Rejection under 35 USC 103(a)

Claims 88-95 were rejected as unpatentable over Yuhas in view of Paper on Webb and further in view of Kawakita. Claims 88-95 have been canceled.

Sixth Rejection under 35 USC 103(a)

Claims 59 and 84 were rejected as unpatentable over Yuhas in view of Paper on Web and further in view of Nakatani, U.S. Patent 6,096,411 ("Nakatani").

Nakatani was cited for the disclosure of non-spherical conductive particles as a

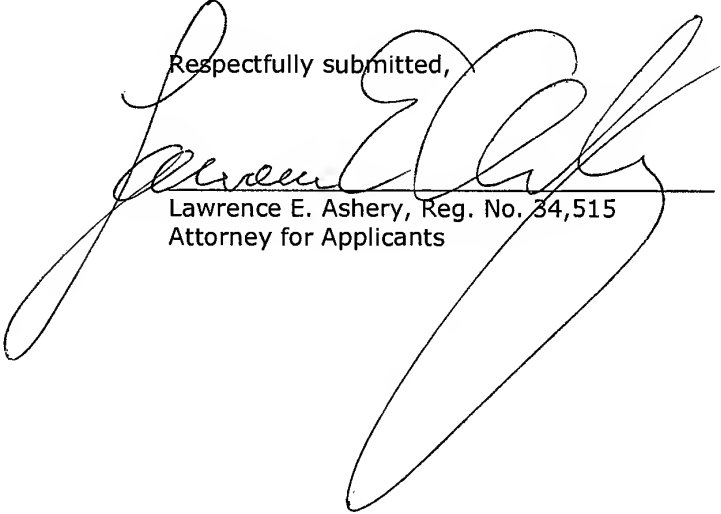
component of conductive paste. Office action of 1/28/08, page 12, lines 1-9.

The Office has not made the *prima facie* case. As discussed above, under the Second Rejection under 35 USC 103(a), the combination of Yuhas and Paper on Web does not disclose or suggest a fiber sheet that comprises three layers in which the density of the non-woven fabric in the inside layer is less than the density of the same non-woven fabric in each of the surface layers. The Office has not alleged that this deficiency is overcome by Nakatani, which was cited for the disclosure of non-spherical conductive particles. Therefore, the rejection of claims 59 and 84 as unpatentable over Yuhas in view of Paper on Web and further in view of Nakatani should be withdrawn.

Conclusion

It is respectfully submitted that the claims are in condition for immediate allowance and a notice to this effect is earnestly solicited. The Examiner is invited to phone applicants' attorney if it is believed that a telephonic or personal interview would expedite prosecution of the application.

Respectfully submitted,



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